THE PLANT DISEASE REPORTER

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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CHECK LIST REVISION

Freeman Weiss

ORYZA (GRAMINEAE)

ORYZA SATIVA L., RICE. In the United States, cultivated commercially in La., Ark., Tex., and Calif., and to a limited extent in Miss., Mo., S. Car., Hawaii and P. R.; formerly in all the Southeastern States to N. Car.

Alternaria sp., on discolored grain. Ark., La., Tex.
Ascochyta oryzae Catt., on discolored glumes. Va.
Aspergillus spp., on discolored grain. Cosmopolitan.
Cercospora oryzae Miyake, narrow brown spot, glume spot. Gulf States, especially La., and Tex. on the Blue Rose and Early Prolific vars.; also in P. R.
Chaetomium sp., on discolored grain. Cosmopolitan.
Cladosporium herbarum Pers. ex Lk., on discolored grain. Cosmopolitan.
Corticium sasakii (Shirai) T. Matsu., sheath spot, banded sclerotial disease, seedling root rot. Ark., La., Tex. Conforms to Pellicularia but not definitely placed.
Curvularia lunata (Wakker) Boed., one of principal causes of discolored grain (black kernel), may also cause seedling blight. Gulf States, P. R.
C. maculans (Bancroft) Boed., on discolored grain. Ark., La., Tex.
Entyloma oryzae H. & P. Syd., leaf smut. Ark., La., Tex.
Epicoccum neglectum Desm., on discolored grain. Cosmopolitan.
Fusarium spp., on discolored grain -- Cosmopolitan; seedling blight -- Ark. F. moniliforme Sheldon commonly present but is of doubtful pathogenicity; no strains producing the ascigerous stage, Gibberella fujikuroi (Saw.) Wr. (G. moniliformis Wineland), have been identified here. F. semitectum Berk. & Rav. is associated with a dry rot of grain in Tex.
Helicoceras oryzae Linder & Tullis, reddish-brown sheath rot, also associated with discolored grain. Ark., La., Tex.
Helminthosporium oryzae Breda de Haan, brown spot, seedling blight, discolored grain (pecky rice). Ark., Calif., Fla., La., Miss., Tex. Conidial stage of Ophiobolus miyabeanus S. Ito & Kuribayashi, but this has not been identified here.
(H. sigmoideum Cav.): Leptosphaeria salvinii
H. s. var. irregulare Cralley & Tullis, stem rot. Ark., La., Tex.
Heterodera marioni (Cornu) Goodey, rootknot. Ark., La., Tex.
Leptosphaeria salvinii Catt., stem rot. Ark., Calif., La., Tex.
Nigrospora oryzae (Berk. & Br.) Petch, on discolored grain. Ark., La., Tex.
Ophiobolus miyabeanus S. Ito & Kuribayaski. See Helminthosporium oryzae.
O. oryzinus Sacc., black sheath rot, foot rot. Ark., La., Tex.
Pellicularia filamentosa (Pat.) Rogers. See Rhizoctonia solani.
Phoma sp., on discolored grain. Ark., La., Tex.
Phyllosticta glumarum (Ell. & Tracy) Miyake, brown-bordered leaf spot, glume spot. Ark., La., Miss., Tex.
Piricularia oryzae Cav., blast, rotten neck, seedling blight. General.

ORYZA SATIVA cont.

Pleosphaerulina oryzae Miyake, on discolored glumes. Va.

Podoconis sp., on discolored grain. Ark., La., Tex.

Pratylenchus pratensis (De Man) Filip., in roots. Ark.

Protascus colorans Wolk (Wolkia decolorans (Wolk) Ramsb.), yellow grain. Ark., Calif.

Pythium sp., root rot. Ark., La.

P. graminicolum Subr., root rot. Hawaii.

P. nagaii S. Ito & Tokunaga, leaf & sheath spot. Ark.

Rhizoctonia oryzae Ryker & Gooch, bordered sheath spot. Ark., Calif., La., Tex. Possibly a variant form of the following; see also Corticium sasakii.

R. solani Kuehn (Pellicularia filamentosa (Pat.) Rogers), sheath spot, stem rot, seedling blight. Ark., Calif., La., Tex. Less frequent than R. oryzae as a cause of sheath spot.

R. zeae Voorhees, sheath spot. La. Apparently a variant of the preceding.

(Sclerotium oryzae Catt.): Leptosphaeria salvinii.

S. rolfsii Sacc. (Corticium rolfsii Curzi), seedling blight. La.

Septoria oryzae Catt., on glumes. Fla.

Tilletia horrida Tak., kernel smut. Southeastern and Gulf States; first found in S. Car., now rare or absent there, present chiefly in La. and Tex.

Trichoconis caudata (Appel & Strunk) Clements, on discolored grain, causing red kernels. Ark., La., Tex.

Ustilaginoidea virens (Cke.) Tak., false smut. Calif., Ga., La., S. Car., P. R.

Chlorosis -- physiological (associated with alkaline soil) or sometimes genetic. La., Tex., P. R.

"Dwarf" -- not virus dwarf so far as known but cause not determined. Tex. Virus dwarf is definitely known only in the Orient.

Mosaic -- cause unknown. P. R. Observed near mosaic (virus)-infected sugar cane but no evidence that the observed symptoms in rice were due to this or any other virus.

Straighthead (sterility). -- physiological, occurs characteristically when new fields, rich in organic matter, are first flooded and is counteracted by drainage; attributed to suboxidation and nitrite accumulation. Gulf States, Calif.

White tip -- physiological, usually associated with alkaline soils and possibly due to magnesium deficiency. Ark., La., Tex., P. R.

ORYZOPSIS (GRAMINEAE)

ORYZOPSIS HYMENOIDES (Roem. & Schult.) Ricker, INDIAN RICEGRASS (1). Tuft-forming perennial of the Western Plains from N. Dak. to Tex., Calif. and Wash.; an important forage grass, and the seeds were used for food by the aborigines. Several other spp. also afford grazing or are useful to wildlife but are not abundant, viz. O. ASPERIFOLIA Michx., ROUGHLEAF RICEGRASS (2), occurring in open woods from the Northeastern States to the Northern Rocky Mountains; O. MICRANTHA (Trin. & Rupr.) Thurb., LITTLESEED R. (3), with range similar to (1); O. MILIACEA (L.) Benth. & Hook., SMILOGRASS (4), introduced from Europe, is sometimes grown for forage.

ORYZOPSIS HYMENOIDES cont.

Claviceps sp., ergot. Wis. On O. racemosa (J. E. Smith) Ricker.
Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. N. Dak. (3).
Asterina graminicola Ell. & Ev. (Dimerina sp. according to Theissen), black spot. Mich. (2).
Dothichloë limitata Diehl, black ring, sterility disease. Pa. (2).
Fusarium spp., root rot, mostly secondary. N. Dak. (1). Including F. equiseti (Cda.) Sacc., F. oxysporum Schlecht., F. scirpi C. R. Lambert & Faut. var. acuminatum (Ell. & Ev.) Wr., F. sporotrichioides Sherb.
Helminthosporium sativum Pam. King & Bakke, root rot. N. Dak. (1).
Hendersonia simplex Schroet. on culms. N. Dak. (2).
Mycosphaerella sp. (Sphaerella oryzopsidis Ell. & Ev.), on leaves. Mich. (2).
Phyllachora oryzopsidis (Rehm) Theiss. & Syd., tar spot. Mass., Mich., Minn., N. Y., Vt., Wis. (2).
Puccinia burnettii Griff. (II, III), rust. Colo., Mont., Nev., Utah., Wyo. (1). O and I on Eurotia lanata (Pursh) Moq.
P. micrantha Griff. (II, III), rust. Colo., Mont., Nebr., S. Dak., (3). O and I on Grossulariaceae.
P. pygmaea Eriks. (II, III), rust. Mich. (2). O and I on Berberis sp. in Europe.
P. scaber (Ell. & Ev.) Barth. (II, III), rust. (1). Calif., Colo., Mont., Nev., N. Mex., Oreg., Utah., Wash. O and I unknown.
P. stipae Arth. (II, III), rust. (1). Ariz., Calif., Colo. O and I on Compositae.
Pythium arrhenomanes Drechs., root browning. N. Dak. (1,4).
P. debaryanum Hesse, damping off. N. Dak. (1).
Rhizoctonia solani Kuehn, secondary root rot. N. Dak. (1).
Scolecotrichum graminis Fckl., brown stripe. Wash. (1).
Selenophoma donacis (Pass.) Sprague & A. G. Johns., stem speckle. Calif., Mont., N. Dak., Oreg. (1).
Stagonospora arenaria Sacc., leaf spot. Mont.
Ustilago hypodytes (Schlecht.) Fr., stem smut. Colo., Mont., Nev., N. Mex., Oreg., Utah, Wash., Wyo. (1).
U. minima Arth., stem smut. Ariz., Colo., N. Mex. (1).
Wojnowicia graminis (McAlp.) Sacc. & D. Sacc., leaf mold. N. Dak. (1).

Bends - cause unknown. Wash., Wyo. (1).

PANICUM (GRAMINEAE)

Capillaria group.* PANICUM CAPILLARE L., WITCHGRASS (1), including the var. OCCIDENTALE Rydb., CUSHION W. Annual, distributed throughout the U. S., the typical form mostly east of the Plains, the var.

* Relatively few of the large number of Panicum spp. are of economic importance, but those possessing some utility for grazing, soil erosion control, or food for wild life are too numerous to list individually here. Accordingly they are presented in groups based upon the sections of the genus recognized in Hitchcock's Manual of the Grasses of the United States and the species are arranged alphabetically within each group.

PANICUM cont.

chiefly western; of some forage value when young, also of food value to wildlife but more commonly regarded as a weed. P. MILIACEUM L., PROSO, BROOMCORN MILLET (2). Coarse annual of Europe, sometimes cultivated for forage and the seed used for hog feed; locally established in waste areas.

Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Minn.
Fusarium spp., root rot, chiefly secondary. N. & S. Dak. (1, 2).
Including F. equiseti (Cda.) Sacc., F. oxysporum Schlecht., and F. scirpi C. R. Lambert & Fautr. var. acuminatum (Ell. & Ev.) Wr.
F. bulbigenum Cke. & Mass., ? pink root. Calif. (2).
Helminthosporium sp., leaf spot. Ida., Iowa, Minn., N. Dak. (1); N.J., Tex. (2).
H. sativum Pam. King & Bakke, root rot. N. Dak. (1).
Phyllachora graminis (Pers. ex Fr.) Fckl., tar spot. N. H. (1).
Piricularia grisea (Cke.) Sacc., leaf spot. Del., Ill., Minn., Ohio. (2).
Pseudomonas panici (Elliott) Dowson, bacterial stripe. Calif., Minn., Mont., Oreg., S. Dak., Wis. (2).
P. syringae V. Hall (P. holci Kendr.), bacterial eye spot. N. Dak. (1,2).
Puccinia emaculata Schw. (II, III), rust. Mass. to Miss., Okla., and N. Dak. (1); Ind. (2). O and I unknown.
Pythium arrhenomanes Drechs., root browning. N. Dak. (2).
Rhizoctonia solani Kuehn, secondary root rot. N. Dak. (1).
Septoria arechavaletae Wint., leaf spot. Va. (1).
Sorosporium syntherismae (Pk.) Farl., loose smut. Mass. to Ind., Kans. and Idaho. (1).
Sphacelotheca destruens (Schlecht.) Stevenson & A. G. Johns. (S. panici-miliacei (Pers.) Bub.), head smut. Calif., Colo., Md., Minn., Mo., Nebr., N. Dak., Ohio, Oreg., Wash. Wis. (2).
Tilletia pulcherrima Ell. & Gall., seed smut. Pa. (1).

Dichotoma and related groups = subgenus Dichanthelium Hitchc. & Chase. Numerous species of perennial grasses characterized by winter rosettes of short leaves and distinct spring and autumn growth habits; usually in woodland, often damp habitats, and mostly in the Eastern, Southern and Central States; not considered economic except as food for wildlife. Typical examples are: PANICUM BOSCII Poir (1), P. CLANDESTINUM L. (2), P. COMMUTATUM Schult. (3), P. LATIFOLIUM L. (4), P. SCRIBNERIANUM Nash (5), P. TENNESSEENSE Ashe (6), P. WRIGHTIANUM Scribn. (7).

Asterina fumagina Dearn. & Barth., sooty mold. P. R. (4).
Cercospora panici J. J. Davis, leaf spot. Wis. (1, 4).
Dothichloë nigricans (Speg.) Chardon, black ring, sterility disease. N. Y., Pa. (2); Fla. (3); Nebr. (5).
Helminthosporium giganteum Heald & Wolf, leaf spot. Md. (2).
Meliola panici Earle, black mildew. P. R. (4)
Metasphaeria panicorum (Cke.) Sacc., on leaves. Ga., S. Car. (3).
M. punctulata Ell. & Ev., on dead culms. Ga. (2, 3).

PANICUM cont.:

Phyllachora punctum (Schw.) Orton, tar spot. Throughout their range on 1, 2, and 4; Fla., Ga., Miss. (3); Ala., Nebr. (5); Wis. (5,6); Iowa (6); N. Y. (7).
Puccinia emaculata Schw. (II, III), rust. Tenn. (3).
Septoria sp., (as S. graminum Desm. but doubtful), leaf spot. Mich. (1), Md., Okla. (2), Nebr. (5).
Tetraploa divergens Tracy & Earle, leaf spot. N. Car. (1, 4).

Maxima group. PANICUM MAXIMUM Jacq., GUINEA GRASS (1). Coarse perennial of Africa, cultivated for forage and established throughout tropical America, including southern Fla. and Tex. P. BULBOSUM H.B.K., including var. MINUS Vasey, BULB PANICUM (2). Tall perennial of moist habitats in the Southwest, useful for forage and sometimes cut for hay.

Cercospora fusimaculans Atk., leaf spot. Canal Zone (1).
Coniothyrium panici Syd., leaf spot. P. R. (1).
Helminthosporium sp., leaf spot. Fla. (1)
Himantia stellifera Johnston, on culms, ? collar rot. P. R. (1).
Otthia panici F. L. Stevens, on dead culms. P. R. (1).
Phyllosticta panici E. Young, (= P. sorghina Sacc. ?) leaf spot. Fla., P. R. (1).
Puccinia atra Diet. & Holw. (II, III), rust. Ariz., N. Mex. (2). O and I unknown.
P. levis (Sacc. & Bizz.) Magn. (II, III), rust. P. R. (1). O and I unknown.
Uromyces graminicola Burr. (II, III), rust. Ala., Fla. (1).

Obtusa and related groups. PANICUM OBTUSUM H.B.K., VINE-MESQUITE (1). Stoloniferous perennial of moist habitats ranging from Mo. to Tex. and Ariz., of some forage value and a good soil binder. P. GYMNOCARPON Ell., SAVANNAH PANICUM (2); P. HEMITOMUM Schult., MAIDENCANE (3). Creeping perennials of moist habitats in the Southern States (the latter extending to N. J.) and tropical America; furnish food for wildlife.

Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Fla., ? La. (3).
Dothichloë nigricans (Speg.) Chardon, black ring. Fla. (3).
Griphosphaerella stevensonii Petr., on leaves. Fla. (3).
Metasphaeria punctulata Ell. & Ev. and M. stenotheca Ell. & Ev., on dead culms. La. (3).
Myriogenospora bresadoleana P. Henn., black crust. Fla. (3).
Nigrospora oryzae (Berk. & Br.) Petch, leaf and glume mold. Fla. (3).
Ovularia sp., leaf streak. Fla. (3).
Phyllachora wilsonii Orton, tar spot. Okla., N. Mex. (1).
Physalospora oxystoma Ell. & Sacc., on dead culms. La., Miss. (3).
Tilletia pulcherrima Ell. & Gall., seed smut. Ariz. (1).
Venturia erysiphioides Ell. & Ev., on culms, La. (3)

PANICUM cont.

Purpurascentia and related groups. PANICUM PURPURASCENS Raddi., PARA GRASS (1). Coarse perennial cultivated for forage throughout tropical America and established in moist habitats in the Gulf States; also furnishes food for wildlife. P. FASCICULATUM Swartz, BROWNTOP PANICUM (2); P. TEXANUM Buckl., TEXAS P. (3). Perennials usually of moist habitats in open ground in the Southern States and tropical America; furnish food for wildlife.

Helminthosporium sp., leaf spot. Fla. (1).
Marasmius sacchari Wakker, on culm bases, ? collar rot. P. R. (1).
Myriogenospora paspali Atk., black crust. Fla. (1).
Nigrospora oryzae (Berk. & Br.) Petch, leaf mold. P. R. (1).
Phyllachora sp., tar spot. Tex. (3).
Piricularia grisea (Cke.) Sacc., leaf spot. Tex. (3).
Puccinia levis (Sacc. & Bizz.) Magn. (II, III), rust. Tex., Canal Zone, P. R. (2). O and I unknown. See also Uromyces leptodermus with which this rust has been confused.
Pythium arrhenomanes Drechs., root rot. Hawaii. (1).
Uromyces leptodermus Syd. (II, III), rust. Fla., Tex., Virgin Is. (1); Canal Zone. (2).

Virgata and related groups. PANICUM VIRGATUM L., SWITCHGRASS (1). Tufted perennial of prairies and open woods ranging nearly throughout the U. S. except the far West, furnishes pasturage and is sometimes cut for hay. P. REPENS L., TORPEDO GRASS (2). Creeping perennial of seacoasts in the Gulf States. P. AGROSTOIDES Spreng., REDTOP PANICUM (3). Tufted perennial of wet meadows in the Eastern, Central and Southern States. P. LONGIFOLIUM Torr., LONGLEAF P. (4). Similar but limited to the Coastal Plain, Mass. to Tex. All are of food value to wildlife.

Ascochyta sp., on leaves. N. Dak. (1).
Cercospora fusimaculans Atk., leaf spot. N. Dak. (1).
Cerebella panici Tracy & Earle (? C. paspali Cke. & Mass.), on inflorescences probably associated with conidial stage of ergot. Miss. (1).
Claviceps sp., ergot. Miss. (1).
Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose. Ala., Kans., La., Minn., Mis. (1).
Curvularia geniculata (Tracy & Earle) Boed., leaf mold. Nebr. (1).
Dothichloë atramentosa Atk., black ring, sterility disease. Ky. (1), Miss. (3).
D. limitata Diehl. Mo. (3).
Exarmidium fusariisporum (Ell. & Ev.) Theiss. & Syd., on dead culms. Kans. (1).
Fusarium equiseti (Cda.) Sacc. and F. scirpi C. R. Lambert & Fautry var. acuminatum (Ell. & Ev.) Wr., secondary root rot. Nebr., N. Dak. (1).
Helminthosporium sativum Pam. King & Bakke, root rot. Nebr. (1)
Hendersonia panicicola Petr., on culms. N. Dak.
Hysterographium graminis Ell. & Ev. Kans. (1).
Metasphaeria subseriata Ell. & Ev., on dead culms. Kans. (1).

PANICUM cont.

Phyllachora cornispora Atk., tar spot. Ala. (3, 4); Ga., Ill. (3). Published as P. cornuospora but has been corrected.
P. congruens Rehm. N. J. (4).
P. graminis (Pers. ex Fr.) Fckl. Iowa, Kans., Ky., Md., Mass., Nebr., N. Y., N. Car., Ohio, R. I., Wis. (1).
Phyllosticta panici E. Young, leaf spot. Okla. (1).
Puccinia panici Diet. (II, III), leaf rust. Northeastern States to Ala., Tex. and S. Dak. (1). O and I on Euphorbiaceae.
Pythium debaryanum Hesse, damping off. Nebr. (1).
Selenophoma donacis (Pass.) Sprague & A. G. Johns., stem speckle. Kans., N. Dak. (1).
Septoria sigmoidea Ell. & Ev., leaf spot. Iowa, Wis. (1).
Sorosporium syntherismae (Pk.) Farl., smut. Mo. (3).
Tetraploa divergens Tracy & Earle, leaf spot. Miss. (3).
Tilletia maclagani (Berk.) Clint., seed smut. Conn., Ill., Iowa, Kans., Nebr., N. Y. (1).
Tilletia pulcherrima Ell. & Gall., seed smut. Ariz., Ill., Iowa, Kans., Miss., Nebr., Okla. (1).
Uromyces graminicola Burr. (II, III), rust. Conn. to Fla., N. Mex. and S. Dak. (1). O and I on Euphorbiaceae.
Ustilago pustulata Tracy & Earle, seed smut, smut gall. Tex. (1) Nebr.
U. underwoodii Zundel, leaf smut. N. Y. (1).

Bends - cause unknown. Wis. (1).

PAPPOPHORUM (GRAMINEAE)

PAPPOPHORUM MUCRONULATUM Nees (1) and P. WRIGHTII S. Wats. (2), PAPPUS-GRASS. Perennials of dry plains in Tex. to Ariz. and southward; of minor forage value and also furnish food for wildlife.

Phyllachora graminis (Pers. ex Fr.) Fckl., tar spot. Tex. (1).
Ustilago hieronymi Schroet., smut. Ariz. (2).

PASPALUM (GRAMINEAE)

PASPALUM DILATATUM Poir., DALLIS GRASS, WATER PASPALUM (1). Tall perennial of S. America, extensively grown as a pasture grass in the Southern States and Hawaii, and locally naturalized in prairies and low meadows from N. J. to Fla. and Tex. and sparingly in the Southwest. P. URVILLEI Steud., VASEY GRASS (2). Coarse perennial of moist habitats in tropical and subtropical America, in the U. S. from N. Car. to Fla. and Tex., and in Calif.; sometimes grown for hay and forage, the panicles also used for brooms.

Cerebella paspali Cke. & Mass., on inflorescences associated with ergot. Ala., La.
Cladosporium sp., head mold associated with ergot. Cosmopolitan.
Claviceps paspali F. L. Stevens & J. G. Hall, ergot. Md. to Fla., Tex. and Okla. (1, 2); Hawaii (1). A source of bovine stock poisoning in pastures after prolonged use.

PASPALUM cont.

Colletotrichum graminicolum (Ces.) G. W. Wils., anthracnose, Fla., Ga. (1).
Fusarium spp., head mold, scab (usually associated with ergot). F. heterosporum Nees is most frequent, F. graminum Cda. and F. avenaceum (Fr.) Sacc. also reported. Southern States.
Helminthosporium sp., leaf spot. Fla. (2).
Heterodera marioni (Cornu) Goodey, rootknot. Hawaii. (2).
Phyllachora sp., tar spot. Miss. (1).
Phyllosticta sp., leaf spot. S. Car. (1).
Puccinia levis (Sacc. & Bizz.) Magn. (II, III), rust. Fla., Ga., La., Miss., Tex. (2). O and I unknown.
Sorosporium paspali McAlp., head smut. Hawaii. (1).
Stagonospora paspali Atk., on leaves. Ga., N. Car., Tex. (1).

PASPALUM DISTICHUM L., KNOTGRASS (1). Creeping perennial of stream banks and wet habitats near the coast from N. J. to Fla. and Tex., occassionally inland in the southern Mississippi Valley and Pacific Coast States; useful in erosion control and furnishes food for wildlife. P. VAGINATUM Swartz, SEASHORE PASPALUM (2). Similar, but restricted to seacoasts from N. Car. to Fla. and Tex. and in tropical America.

Claviceps paspali F. L. Stevens & J. G. Hall, ergot. Miss., Okla., S. Car., Va. (1). Frequently with Cladosporium sp. and Fusarium heterosporum Nees secondary.
Phyllachora cornispora Atk., tar spot. Fla. (1).

PASPALUM NOTATUM Flügge, BAHIA GRASS (1). Mat-forming perennial of tropical and subtropical America, an important forage grass of lowland pastures, sparingly introduced into the Gulf States. P. PUBIFLORUM Rupr., including var. GLABRUM Vasey (2). Perennial of moist open ground and low woodlands in the Gulf States and southward, of some forage value and furnishes food for wildlife.

Claviceps paspali F. L. Stevens & J. G. Hall, ergot. Ariz., Fla., Ga., La. (1); Ga., Va., Tex. (2).
Cuscuta sp., dodder. Tex. (2).
Curvularia sp., leaf mold. Fla. (1).
Fusarium heterosporum Nees, head mold, scab (probably secondary to ergot). Fla., La. (1).
Helminthosporium sp., leaf spot. Fla. (1).
Phyllachora cornispora Atk., tar spot. P. R. (1).
P. wilsonii Orton. Tex. (2).

PASPALUM spp. Besides the foregoing, many other paspalums are conspicious or significant elements of the grass flora chiefly in the Southern States and tropical America; a few are of forage value when sufficiently abundant, several furnish food for wildlife, and some are weeds in cultivated ground. Representative

PASPALUM spp. cont.
species of this group are: P. BOSCIANUM Flügge (1), P. CILIATIFOLIUM Michx. (2), P. CONJUGATUM Bergius (3), P. LAEVE Michx. (4), P. PANICULATUM L. (5), P. PLICATULUM Michx. (6), P. VIRGATUM L. (7).

Angiopsora compressa Mains (II, rarely III), rust. Fla., Canal Zone, (3). P. R. (3, 5, 6). O and I unknown.
Balansia clavula (Berk. & Curt.) Lloyd, black crust. Fla., Va. (2).
Chaetospermum tuberculariodes (Pat.) Sacc. Fla. (2).
Claviceps paspali F. L. Stevens & J. G. Hall, ergot. Fla., Ga., Va., (2); Ark., Md., N. Car., Okla., Va. (4); Fla., Tex., P. R. (6);
Dothichloë atramentosa (Berk. & Curt.) Atk., black ring. Va. (?2).
Fusarium heterosporum Nees, head mold. P. R. (6), Canal Zone. (7).
Helminthosporium spp., leaf spot or on fading leaves. Fla. (5); H. mayaguezense Miles, P. R. (3); H. rostratum Drechs. Ga. (1).
H. micropus Drechs., seedling wilt and leaf necrosis. Fla. (1).
Himantia stellifera Johnston, on rhizomes, ? collar rot. P. R. (5,6,7).
Myriogenospora bresadoleana P. Henn., black streak, tangle-top. P. R. (3)
M. paspali Atk. Va. (2), Ala. (4).
Phyllachora congruens Rehm, tar spot. P. R. (3).
P. cornispora Atk. Ala., Fla. (4); Canal Zone. P. R. (7).
P. guianensis F. L. Stevens. Fla. (2), La. (4), Canal Zone. (5, 6), P. R. (7).
P. paspalicola P. Henn. Canal Zone. (3, 6), P. R. (3).
P. wilsonii Orton. Ala., Fla., Ga. (2).
Piricularia grisea (Cke.) Sacc., leaf spot. Ala. (6).
P. dolosa Arth. & Fromme (II, III), rust. Canal Zone, P. R. (5, 6). O and I unknown.
P. levis (Sacc. & Bizz.) Magn. (II, III), rust. P. R. (6), La. (7). O and I unknown.
P. substriata Ell. & Barth. (II, III), rust. Fla., Tex. (2); Fla. (3, 6); P. R. (3, 5, 6, 7). O and I on Solanum spp. See also P. dolosa and Angiopsora compressa which have been confused with this.
Stagonospora paspali Atk., on leaves. Ala. (4).
Tilletia rugispora Ell., seed smut. La., Tex. (6).

Mosaic -- Marmor sacchari Holmes (Saccharum virus 1, K. M. Sm.) Fla., Ga. (1).

PENNISETUM (GRAMINEAE)

PENNISETUM ALOPECUROIDES (L.) Spreng., CHINESE PENNISETUM. Tall perennial of China, occasionally cult for ornament.

Helminthosporium giganteum Heald & Wolf, leaf spot. Md.
Ustilago penniseti Rabh., smut. Va.

PENNISETUM GLAUCUM (L.) R. Br., PEARL MILLET. Coarse Old World annual,

PENNISETUM cont.
cult since antiquity for its grain, but in the Southern States grown chiefly for forage and as a soiling crop.

Curvularia sp., leaf mold. Ga.
Gloeocerospora sorghi Bain & Edg., leaf spot. Ga.
Helminthosporium sp., leaf spot. Fla., Ga.
H. sacchari (Breda de Haan) Butl., eye spot. Hawaii.
Tylenchus spiralis Cassidy, in roots. Hawaii

Mosaic -- Marmor sacchari Holmes (Saccharum virus 1 K.M.Sm.). Ga.

PENNISETUM PURPUREUM SCHUMACH., NAPIER GRASS, ELEPHANT G. Coarse perennial of Africa, introduced as a forage and soiling crop in Florida and the West Indies.

Curvularia sp., leaf mold. Ga.
Helminthosporium sacchari (Breda de Haan) Butl., eye spot. Fla., Ga., Hawaii.
Heterodera marioni (Cornu) Goodey, rootknot. Hawaii.

Leaf mottle -- cause unknown but presumed to be of genetic origin because of transmission through seed. P. R.

DIVISION OF MYCOLOGY AND DISEASE SURVEY

FUSARIUM ROTS AND OTHER STORAGE DISEASES OF POTATOES IN NEW YORK

Robert C. Cassell

1 -- March 5 to March 17.

During the first 2 weeks of March, 58 lots of potatoes belonging to 34 growers were examined in Steuben, Broome, Cortland, Onondaga, Oswego, and Orleans Counties. The tubers examined represented approximately 356,500 bushels ranging in size of lots from 30 to 42,000 bushels. Except for 2 small lots in cold storage, the potatoes were held in cellars or especially constructed common storages. In general, the keeping condition was very good, and only a small amount of sprouting had occurred in a very few bins. The 2 most common rots encountered in storage were those caused by the late blight organism, Phytophthora infestans, and by species of Fusarium.

Fusarium Rots. Fusarium rots were found in 34 of the 58 lots, with an average prevalence of about 5% affected tubers in the 34 bins. Prevalence in affected bins ranged from a trace to 17%; in 9 of the bins there was only a trace, while 6 bins contained 10% or more.

The Fusarium rots were classified into 2 groups: one representing a type of dry rot caused by an organism tentatively identified as Fusarium sambucinum, the second including other types of rots presumably caused by species of Fusarium other than F. sambucinum.

The present survey was undertaken especially to determine the prevalence of the F. sambucinum type of rot in New York. Dr. M. F. Barrus of Cornell University previously had received reports and some samples of this rot from at least a dozen growers in 5 counties. The type of rot appeared to be somewhat different from the usual Fusarium rots, and repeated isolations from the various sources consistently yielded a similar Fusarium that has been identified tentatively as F. sambucinum. It is hoped that positive identification can be obtained in the near future.

Of the Fusarium rots encountered this F. sambucinum type was by far the most common. It was found in all 6 counties, with the greatest concentration in Steuben, Cortland, and Southern Onondaga. Of the 34 bins in which Fusarium rot was found F. sambucinum was present in 27, with an average prevalence of about 4%; 17% was the most found in any one bin and 5 bins contained from 10 to 17% affected tubers.

The distribution of the Fusarium rots in the bins examined is shown in Table 1.

Table 1. Distribution of Fusarium rots of potato in bins examined in 6 New York counties, March 5-17.

	Number
Bins examined	58
Bins containing Fusarium rots	34
Bins containing F. sambucinum type	27
Bins containing F. sambucinum type only	22

From the results of this limited survey it would seem that of the varieties encountered, Chippewa, Sequoia, and Sebago are most susceptible to the Fusarium sambucinum type of rot (see Table 2). This is true for the average prevalence of affected tubers considering all bins examined, as well as for the average prevalence of affected tubers within the affected bins only. Certainly Rural, Houma, and Green Mountain appear less susceptible.

Table 2. Prevalence by variety of the Fusarium sambucinum type of potato tuber rot in bins examined in 6 New York Counties. March 5-17.

Variety	Number of bins		Average prevalence of rot	
	Examined	Affected	For all bins	Within affected bins
			%	%
Chippewa	12	10	5.2	6.2
Sequoia	4	2	3.0	6.0
Sebago	13	7	2.5	4.0
Katahdin	15	5	0.7	2.0
Green Mountain	6	2	0.4	1.3
Houma	5	1	0.1	0.5
Rural	3	0	0	0

The dry rot caused by Fusarium sambucinum seems to disintegrate the tissue, leaving a dry cast as the rot progresses into the flesh of the tuber. As a result, there is a tendency for the skin to form a shrivelled but fairly firm cover over a dry cast of disintegrated flesh of varying depth depending upon the activity and progress of the fungus.

The affected area may be small, or it may involve a considerable portion of the tuber. Surface disintegration may almost keep pace with interior collapse so that the advance line of the rot may be fairly straight across the tuber. In other cases the interior disintegration may progress ahead of the surface disintegration, thus forming a shallow dry pit into the flesh concealed by the firm dry cast filling covered by the partially shrivelled dry skin. The color of the F. sambucinum type of rot is also quite characteristic. The surface and fleshy tissue are almost a deep black in the early stages; with age, however, the color throughout the affected area becomes a deep brown.

Apparently, infection can take place anywhere on the tuber that a wound occurs. Although experimental evidence is lacking, it seems probable that a break in the skin must occur before infection can take place. Many times it is impossible to determine from the specimen whether a break had occurred, but in most cases there is an obvious break in the skin through which infection probably took place. In some instances infection had occurred at large openings in the surface, such as a digger knife slice.

Counts were made in 2 bins where F. sambucinum occurred to determine the number of wounded tubers affected, with results shown in Table 3.

Table 3. Condition of tuber surface in 2 lots of potatoes infected with Fusarium sambucinum.

	Infected tubers		Sound tubers	
Variety	Infection traceable to skin wounds	Infection not traceable to skin wounds	With obvious skin wounds	With no obvious skin wounds
	No.	No.	No.	No.
Chippewa	17	0	45	38
Sebago	4	0	48	48

Although in these 2 cases the possible original infection could be traced to a skin wound, only a small percentage of wounded tubers were actually infected.

Late blight Rot. Late Blight tuber rot was found in 33 of the 58 bins examined at this time. Prevalence ranged from a trace to 50%. Only a trace was present in 19 of the 33 bins, while from 25 to 50% of the tubers were affected in 5 bins. The average in the 33 affected bins was 8%. The greatest amount of infection apparently took place when potatoes were dug while the vines were partially green. Growers professed not to know that any blight was present on the tops, but it is possible that a light infection late in the season might have been overlooked.

Other Rots and Injuries. Bacterial ringrot (Corynebacterium sepedonicum) was found in 6 of the 58 bins examined. It was found in 3 locations in Steuben County, and in 2 locations in Oswego County. Except for one lot of 20,000 bushels of Katahdin in Oswego County, that contained about 2% affected tubers at the time of examination, prevalence ranged from no more than a trace to less than 1%.

"Z" Disease (Fusarium [solani f.] eumartii) was found in 5 locations in Oswego and Onondaga Counties; only a trace was found in 3 cases, while prevalences of 1 and 2% existed in the other 2.

Blackleg tuber rot (Erwinia atroseptica) [E. phytophthora] was found in 4 bins in Oswego and Onondaga Counties. Prevalence ranged from a trace to about 1%.

Net-necrosis (leaf-roll virus) and stem-end browning (cause unknown) were found in a bin of Sequoia in Onondaga County, and in a bin of Green Mountain in Oswego County. In Sequoia the prevalence of stem-end browning was 4 or 5%, and of net-necrosis 2 or 3%. In Green Mountain the prevalence of stem-end browning was about 10%, and of net-necrosis about 5%.

Silver scurf (Spondylocladium atrovirens) was found as a light infection on 1 to 5% of the tubers in 3 bins in Steuben County.

Rhizoctonia [solani] was more or less prevalent in all lots examined, although no records were kept of prevalence or severity. Lesions were noted on about 15% of the sprouts in one very poor storage.

The presence of scab (Actinomyces scabies) was also variable and no particular records were kept. However, deep lesions existed on from 2 to 7% of the tubers in at least 4 of the storages.

What appeared to be spindle tuber (virus) was present in 3 to 6% of the tubers in 2 lots of Katahdin.

Some complaint was expressed by growers of the presence of hollow heart (physiogenic), especially in Onondaga County. In one bin of Katahdin examined the owner reported that 3 to 4% of the tubers were hollow. Three other bins of Katahdin and Sebago were found to have hollow tubers but it was not feasible to try to determine the percentage.

Field sunburn was present in most bins of Chippewa, Sebago, and especially Katahdin. In a few counts made, the prevalence ranged from 2 to 4%; however, one bin of Katahdin contained about 8% affected tubers.

Only a slight amount of field frost damage was seen in 3 or 4 bins.

II -- March 19 to March 31.

Potatoes representing 205,000 bushels belonging to 26 growers were examined in Allegany and Wyoming Counties during the last half of March. All were in common storages. The Fusarium rots, as in the earlier survey, continued to be the most prevalent type of storage rots found, although certainly not causing as much loss as scab in parts of Wyoming County.

Fusarium Rots. Fusarium rots were present in 35 of the 41 bins examined, ranging from a trace to 10% in prevalence. The F. sambucinum (tentatively identified) type was present in 26 bins (Table 4), ranging from a trace to 8% with an average prevalence of about 1.6% for the 26 bins. What appeared macroscopically to be Fusarium rots other than the F. sambucinum type were also present in 26 bins, ranging from a trace to 4% in prevalence with an average of about 0.6% for the 26 bins. In Allegany County the F. sambucinum type was present in only 13% of the 15 bins examined, while in Wyoming County it occurred in 92% of the 26 bins examined.

Table 4. Distribution of Fusarium rots of potato in bins examined in Allegany and Wyoming Counties, New York, March 19-31.

	Number
Bins examined	41
Bins containing Fusarium rots	35
Bins containing F. sambucinum type	26
Bins containing F. sambucinum type only	9

The present survey gives a better idea of the susceptibility of Rural to the Fusarium sambucinum type of rot (Table 5) than did the survey during the first half of March when only 3 bins out of 58 examined were of this variety.

Table 5. Prevalence by variety of the Fusarium sambucinum type of potato tuber rot in bins examined in Allegany and Wyoming Counties, New York, March 19-31.

Variety	Number of bins		Average prevalence of rot	
	Examined	Affected	For all bins	Within affected bins
			%	%
Chippewa	1	1	4.0	4.0
Sebago	4	3	1.4	1.8
Silver Crown	1	1	1.0	1.0
Rural	19	13	0.95	1.38
Katahdin	14	8	0.84	1.47
Rose of Hebron	1	0	0	0
Maple Leaf	1	0	0	0

Other Rots and Injuries. Scab was found to be particularly serious on 4 of 5 farms visited in Bennington and Sheldon Townships of Wyoming County. On 2 farms 95% of the tubers were diseased, and 75% were a loss except as stock food. On another farm 60% of the tubers were scabby with a 40% loss. On another farm the tubers were about 7% affected, and on the fifth farm only about 1%. The varieties on these farms were Russet Rural and Katahdin. The 2 lots with 95% scab were of Russet Rural.

Late blight tuber rot was found in 13 of the 26 bins in Wyoming County. Prevalence ranged from a trace to 5% with an average prevalence of 1.2% for the 13 bins. No late blight rot was found in Allegany County.

"Z" Disease also was found only in Wyoming County. It was present in 7 of the 26 bins. Except for one case where about 1% of the tubers were affected, prevalence ranged from a trace to slight amounts.

Bacterial ringrot was present in 3 of the 15 bins in Allegany County and in 2 of the 26 bins in Wyoming County. Only a trace was present in 3 bins, and about 1% in the other 2.

Chilling injury was responsible for a loss of about 30% of 500 bushels in one bin near Warsaw. What appeared to be spindle tuber was present in about 5% of the tubers in one bin of Russet Rural. Two percent stem-end browning was found in a lot of 14,000 bushels of Russet Rural.

III -- April 2 to April 14.

In this final survey for the season of potato storages in New York State, 28 bins were examined on 21 farms in Erie, Allegany, and Steuben Counties. The tubers examined represented 62,000 bushels all in common storage.

Fusarium Rots. Fusarium rots were present in 24, or 85.7%, of the 28 bins examined. Distribution and average prevalence are given in Table 6. Of the 28 bins, 4 contained the Fusarium sambucinum (tentatively identified) type of rot only.

Table 6. Incidence of Fusarium tuber rots in 28 potato bins examined in Erie, Allegany, and Steuben Counties, New York, Apr.2-14.

	Average prevalence in all bins examined (28)	Incidence in affected bins	
		Number of bins	Average prevalence
	%		%
All Fusaria	6.7	24	7.8
Fusarium sambucinum type	4.6	18	7.2
Fusaria other than F. sambucinum	2.1	20	3.0

Two bins containing only the Fusarium sambucinum type of rot are worthy of mention. One was of "B" size Sebago tubers saved for seed. The lot of about 200 bushels had been graded 3 or 4 weeks previously and was presumably fairly free from rot. However, more rot developed subsequently, so that if the lot were to be regarded at this time at least 10% of the tubers would have to be discarded. The other case also was of Sebago. It involved only a single bushel of seed, but had been hand picked last fall from a bin of excellent appearance. At the time of examination 80% of the tubers were affected with the rot. There was no opportunity to inspect the original bin.

Table 7 gives the relative susceptibility of the different varieties to the F. sambucinum type of rot as observed in this survey.

Table 7. Prevalence by variety of the Fusarium sambucinum type of potato tuber rot in bins examined in Erie, Allegany, and Steuben Counties, New York, Apr. 2-14.

Variety	Number of bins		Average Prevalence of rot	
	Examined	Affected	For all bins	Within affected bins
			%	%
Sebago	10	6	10.7	17.8
Pontiac	1	1	7.0	7.0
Katahdin	9	6	1.2	1.8
Chippewa	1	1	1.0	1.0
Rural	7	4	0.36	0.62

Other Rots and Injuries. Late blight rot was found in 7 of the 28 bins inspected. Only a trace of tuber rot was evident in 6 of the affected bins, while about 2% loss occurred in the seventh.

Scab infection of any consequence was found in only 3 bins: 2 bins contained about 2% and the third about 10%.

A trace of bacterial ringrot was found in 2 places, both in Steuben County.

"Z" Disease was found as a trace at one location in Steuben County. Silver scurf was found on 2 farms in Erie County. In one case moderate to heavy infection was noted on 40% of the tubers, in the other from a trace to moderate infection on 10% of the tubers.

Net-necrosis was present in one bin of Rural, in only a small amount (about 1%).

Field frost accounted for about 22% loss in one bin of 6,500 bushels of Katahdin.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

OTHER REPORTS ON POTATO DISEASES IN STORAGE

Reports are of Emergency Plant Disease Prevention Project surveys.

COLORADO: During the week ending March 31, a potato disease survey was conducted in Weld County in company with Dr. W. A. Kreutzer and Mr. George H. Lane of the Colorado Experiment Station.

Although most of the potatoes stored in Weld County have been shipped, many growers are still sorting seed. Several storage houses in which sorting was being conducted were visited. In addition to leak (Phytophthora sp.), Fusarium dry rot (F. trichothecioides and Fusarium spp.), stem-end and vascular discoloration (F. solani f. eumartii), bacterial ringrot (Corynebacterium sepedonicum), brown tuber rot (Alternaria solani), scab (Actinomyces scabies) and net-necrosis (cause unknown) were found in culled potatoes.

Examinations of cull piles outside of storage houses from potatoes shipped as table stock indicated that losses from the above diseases, especially those from leak and Fusarium dry rot, were unusually high.

Although late blight (Phytophthora infestans) was found in the fall of 1944 in only one field in trace amounts on the leaves and stems, no tuber symptoms were apparent. However, in the examination of 6 cull piles 2 miles east of Lucerne, Colorado, tubers showing definite late blight symptoms were found in moderate amounts in one pile and in small amounts in two others. -- E. W. Bodine.

IDAHO: From March 7 to 10 a survey was made of potato cellars in Northern Idaho, in Benewah, Kootenai, Bonner and Boundary Counties. About 185 acres of certified seed stock of Russet Burbank and 25 acres of Chippewa were represented. Potatoes were stored in 15 cellars. Considerable variation in conditions was noted but, generally speaking, tubers were keeping well. The predominant storage disease observed was black rot caused by Fusarium spp., which seemed to be more active in cellars with poor ventilation and high humidity. The organism entered at bruises, cuts, and broken knobs. Some loss was noted from cellar frost. Rhizoctonia was common, and traces of scab were found, as well as slight amounts of leak caused by Pythium debaryanum. In many cases a high percentage of the tubers showed abnormal shapes, such as bottleneck, supposed to be due to environmental conditions. An undetermined rot was very prevalent in one lot of Chippewa. It was evident that in this area black rot was predominant this year, but losses were not excessive.

On March 19, 5 cellars in Lewis County were examined, representing about 550 acres of certified Russet Burbank seed. In one cellar part of the crop showed severe loss caused by black rot and leak. The stock was rather immature, although the tubers were large, and excessive bruising had occurred. A carload had been rejected for failure to meet grade. In another large cellar almost no rot of any kind was found. In one of the largest cellars in the area one lot being sorted at the time of the survey showed probably 10 to 15% rot that was not the typical black rot, being much drier and forming a shell rot. The grading process in potatoes affected with leak and black rot is very difficult, since frequently severe rotting is not easily distinguished on the surface of the affected tuber.

On March 20, 6 cellars representing about 365 acres of certified Russet Burbank seed were examined in Valley County. Most cellars in this area

were overloaded, and in some cases excessive sweating in individual bins resulted in premature sprouting and the development of black rot. The amount of rot was not excessive except in local spots. Tuber shape and condition generally were good.

On March 21 and 22 potato cellars were examined near Payette, Idaho, and Vale, Oregon. Traces of bacterial ringrot were noted in 2 cellars in Idaho, and black rot was common. In Oregon, a high percentage of the tubers in one cellar were affected with what is designated as monkey-face. The bud ends of affected tubers are severely cracked and deformed. The condition is often spoken of as growth cracks, but the type mentioned here may be due to some specific agent, possibly a virus.

In one lot of White Rose some tubers were found that showed a very severe vascular discoloration extending into the eyes and killing them. This condition has not been observed before, and the cause is not known. The grower contended that it was due to heat damage, although the potatoes were reportedly grown in western Oregon. -- Earle C. Blodgett.

REPORTS ON LATE BLIGHT OF POTATO AND TOMATO

Reports are of Emergency Plant Disease Prevention Project surveys.

LATE BLIGHT AND EARLY BLIGHT ON POTATO IN SOUTHERN LOUISIANA: Late blight (Phytophthora infestans) was reported early in the week by Dr. L. H. Person and Dr. S. J. P. Chilton of the Louisiana Experiment Station. Two small outbreaks occurred in Pointe Coupee Parish, one at Simsport, the other at New Roads. Seed for one of the affected fields was known to have come from North Dakota. At the request of Dr. C. W. Edgerton, another survey was made in Terrebonne and La Fourche Parishes. No late blight was seen. Early blight (Alternaria solani) was causing considerable foliar damage in several early-planted fields and was spreading to late-planted fields. -- Douglas C. Bain, Apr. 9-14.

TOMATO LATE BLIGHT IN EAST TEXAS: During the week of April 9, attention was called to a trouble experienced by certain East Texas tomato growers. With Dr. P. A. Young of the Tomato Disease Laboratory, examination was made of fields in the vicinity of Jacksonville and the trouble was found to be caused by late blight, Phytophthora infestans.

The infection was directly traceable to tomato plants brought in from the Lower Rio Grande Valley. In some instances growers bought Valley plants and "heeled" them near cold frames containing locally-grown plants, which became infected. Many growers lost entire fields, and reset 2 and 3 times. The weather being favorable for the fungus, infection spread from the Valley-grown plants to others very rapidly. Within a 50-mile radius of Jacksonville, 40 acres were examined which showed 90% to total loss. In every case Valley-grown plants had been used.

Earlier, Dr. E. F. Paddock, of the Yoakum Laboratory, reported that several growers had bought Valley plants, and that none had survived, most dying before they got to the field. None of these plants were left when fields in this area were visited about March 29, but the description of the symptoms as given by those few who had the plants, leaves little doubt but that the disease was late blight.

This is the first report of late blight in East Texas for at least 10 years. Search of the early records may show it to be the first time in the history of the East Texas tomato industry. -- George E. Altstatt.

STORAGE DISEASES REPORTED ON VEGETABLES

Reports are of Emergency Plant Disease Prevention Project surveys.

STORAGE DISEASES OF CARROT AND ONION IN NEW YORK: Carrot -- Ten cold storages were visited in Wayne, Monroe, and Orleans Counties in order to get a final picture at the close of the carrot storage season. As reported earlier this has been a particularly successful season from the storage standpoint. Losses have been exceedingly light; none of any appreciable amount are known to have occurred in the State this season. In most houses the overall loss for the storage season will amount to no more than 1 to 3%. Exceptions occurred only in cases of a few individual lots that came into storage in unusually poor condition for one reason or another. Otherwise the only rather general loss occurring in a few houses is where the crates were piled too high and came into close contact with the overhead cooling pipes.

Probably the greatest total loss occurred in one plant in Fairport where there was an estimated 5 to 6% loss of 50,000 bushels of carrots. There was no particularly evident reason for this loss other than that the house was new and in use for the first time. The house was very tight and a noticeable lack of oxygen was evident. Humidity was also exceedingly high. Watery soft rot (Sclerotinia sclerotiorum) was responsible for 95% of the loss. Other diseases present were slight amounts of rot caused by gray mold (Botrytis spp.), and a Mucor.

Except for cases mentioned below involving very small quantities the loss picture for the season appears about as follows: Medina 13,000 bushels, total loss 1 to 2%; Williamson 60,000 bushels, total loss 1 to 2%; Marion 80,000 bushels, total loss 1 to 2%; Savannah 40,000 bushels, total loss 2 to 3%; Clyde 15,000 bushels, total loss 2 to 3%; Sodus 1,000 bushels, total loss 2 to 3%; Webster 31,000 bushels, total loss 2 to 3%; and North Rose 1,000 bushels, total loss 3 to 4%. In the Webster and North Rose houses and in two houses in Williamson, gray mold rot was the cause of the greatest amount of loss. In the houses in Sodus, Marion and Medina, watery soft rot was the principal cause of loss. In Albion, black rot (Alternaria radicina) was the most prevalent disease. In Savannah black rot and watery soft rot were about equally present. In one house in Fairport an unidentified sclerotial forming fungus seemed to be the principal cause of trouble.

Some of the heavy losses of small quantities of carrots and the reasons for the losses are as follows: Savannah 21% loss of 1170 bushels, mostly black rot; Marion 11% of 550 bushels, mostly watery soft rot with some gray mold; Williamson 17% of 300 bushels, mostly gray mold rot with lesser amounts of watery soft rot, black crown rot, and a rot caused by an unidentified sclerotial forming fungus; Sodus 14% of 500 bushels, mostly black rot with lesser amounts of gray mold rot, watery soft rot, and bacterial soft rot (Erwinia carotovora). In another Sodus house there was a complete loss of 80 bushels on the top tier of boxes under the cooling pipes. Watery soft rot was the only identifiable rot present.

Onions -- Considering the lateness of season there is still a large quantity of onions on hand in most storages. The price has not been sufficiently favorable to move them. This is causing heavy losses in certain storages where the condition of the onions has not been too good during the storage season. However, in other storages the onions are still in good condition. These storages are almost without exception the same ones in which onions were found to be in very good condition in January.

It is estimated that there will be nearly a 40% loss of 40,000 bushels in a cold storage in Savannah and a 25% loss of 30,000 bushels in Marion. On the other hand, in Albion 42,000 bushels are in very good condition and the loss would not exceed 2 or 3% if the onions were marketed at the present time. In Savannah the most prevalent diseases were Fusarium bulb rot (Fusarium spp.), bacterial soft rot (Erwinia spp.), gray mold rot (Botrytis spp.), with a smaller quantity of blue mold rot (Penicillium spp.), and a trace of Mucor. The same rots were also present in the Marion storage with a proportionately greater abundance of blue mold rot and gray mold rot. -- Robert C. Cassell, Apr. 2-14.

STORAGE DISEASES OF SWEETPOTATO SEED STOCK IN MISSOURI: Sweetpotato seed stock in storage was inspected with H. Ivan Rainwater, Assistant State Entomologist, at the request of the grower who desired State certification. Sweetpotatoes for table use had been disposed of, so no indication of the incidence of disease in the sweetpotatoes for market could be obtained. The various diseases observed on the roots saved for slip production are as follows. Twelve percent of the roots showed the presence of slightly depressed and more or less circular spots. While the lesions were generally characteristic of those described for surface rot (Fusarium oxysporum), and a Fusarium sp. developed profusely on many of the lesions under moist-chamber conditions, it is possible that some of the spotting may have been due to mechanical injury. Four percent of the roots showed varying amounts of scurf (Monilochaetes infuscans). Soft rot and ring rot (Rhizopus sp.) accounted for about 0.8% loss, and 3% of the roots showed fairly advanced stages of charcoal rot (Sclerotium bataticola). An occasional root with vascular discoloration suggesting wilt (Fusarium sp.) infection was observed. Mr. Rainwater disclosed that a trace of wilt infection had been found in a field inspection of these potatoes during the growing season. Specimens of diseased roots from various sources have been submitted for examination by Mr. Clyde Cunningham, Extension Horticulturalist at the University of Missouri. These have shown the presence of soft rot, ring rot, scurf, surface rot, and pox (soil rot), [Actinomyces ipomoeae] which would suggest that these diseases are fairly commonly encountered on this suscept in this area. -- T. W. Bretz, period ending March 31.

DISEASES OF VEGETABLES IN NORTHERN NEW JERSEY

A. J. Mix

Seventh visit to Northern New Jersey vegetable growers, April 11 to 12, 1945: Lettuce and cauliflower are now in fields or in frames (transplanted) and field-planting of cabbage is continuing. Seed-bed troubles for these

crops are therefore past and little disease has developed in fields so far.

Gray mold (Botrytis sp.) of lettuce has carried over to the fields and to transplant-frames in all cases where it had been previously observed in seedling frames (Farms 4,5,9,11,15,18,19). Plants are completely rotted off near the ground-line and the fungus fruits abundantly on the rotted portion of the stem. The number of plants diseased varied from about 1% to 5% or slightly more in Romaine, and from less than 1% to 1% in the Iceberg variety. There was direct correlation between the amount of the disease in the field and the amount previously observed in seedlings on the same farm.

One plant affected by drop (apparently Sclerotinia minor) was seen in a frame of Boston lettuce at Farm 19, where it had not been observed previously.

Damping-off and root rot of pepper seedlings was found in the greenhouse at Farm 6. Patches occurred in flats where the seedlings either failed to come up or came up slowly and later died. Loss of stand in individual flats was as high as 40%, and since all flats with any considerable number of diseased plants were discarded the grower's loss was 46 out of 75 flats. No seedlings other than pepper have so far been found affected but all varieties of peppers planted seemed to be equally susceptible.

This trouble seems to be the same as that reported several times previously as occurring in Iceberg lettuce at Farm 12. The main axis (stem or root) is browned, often decorticated, and finally rotted off. New adventitious roots are often formed and (in lettuce) most of the plants survive and make some recovery. In many of the browned pepper roots a fungus is present, apparently the same as that seen in the 2 earliest collections of diseased lettuce. The fungus, which when isolated from lettuce was believed to be secondary, has been identified by Dr. L. S. Olive as Monotospora sp., probably M. daleae Mason. No opinion as to its pathogenicity is ventured at this time.

The soil in this greenhouse had not been sterilized, the grower relying, as explained in earlier reports, upon sanitation, thin seeding, and care in watering.

Injury to young celery plants in the greenhouse at Farm 14, Paramus, was observed to be considerable. The trouble had been diagnosed by Dr. J. S. Joffe of the New Jersey Experiment Station as due to an excess of nitrates in the upper part of the soil, and treatment had been prescribed. Plants showed yellowing and whitening of leaves and various degrees of root-browning. Growers in this area start their seedlings in deep beds with porous bottoms, nearly filling the beds with manure, then adding their field-soil (muck, or close to it). Drainage is far from perfect and troubles similar to the above have been experienced for several years past.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

DISEASES OBSERVED ON ORNAMENTALS IN MISSOURI GREENHOUSES

T. W. Bretz

During the period ending March 31, greenhouse ranges devoted to the culture of potted ornamentals and cut flowers were inspected in the St. Louis, Kansas City, and St. Joseph areas, in conjunction with inspections

made by Assistant State Entomologists H. Ivan Rainwater and Lester Davis. Production was at its peak for the Easter trade and a fairly wide variety of stock was on hand for examination.

Antirrhinum (Snapdragon). Gray mold (Botrytis sp.) affecting the leaves and inflorescences, and also causing a stem and branch canker, was the only disease observed on this suscept. In one range it was causing moderately severe losses. In others the damage was slight.

Azalea. Leaf spot (Septoria azaleae) was causing slight to moderate disfiguration of the foliage in most ranges and in some instances was causing slight defoliation.

Begonia. Gray mold (Botrytis sp.) was causing slight damage to foliage and inflorescences in one range.

Chrysanthemum. Leaf spot (Septoria chrysanthemella) was noted in light to moderate amounts in all ranges. It was most prevalent and damaging on the stock plants. Light powdery mildew (Erysiphe cichoracearum) infection was observed in one range. In another range a high percentage of the bench cuttings were damping-off (Pythium sp.). The sand in this bench had not sterilized.

Cineraria. Gray mold (Botrytis sp.) was causing a trace of damage to the foliage and inflorescences of this suscept in one range.

Dianthus caryophyllus (Carnation). Branch rot (Alternaria dianthi) was the most prevalent and serious disease observed. Damage ranged from slight to moderately heavy in the various ranges. Rust (Uromyces caryophyllinus) was observed in all ranges. It was of minor importance in the bench plantings, but was quite prevalent in the cuttings. Mosaic (virus) infection was observed in all ranges. Intensity of symptoms varied greatly among varieties within the same range.

Gardenia jasminoides (Gardenia). Bud drop (physiogenic) was causing minor damage in one range.

Hedera helix (English Ivy). Moderately heavy bacterial leaf spot (Phytomonas [Xanthomonas] hederae?) attack was observed in one of the greenhouses visited.

Hydrangea. Light powdery mildew (Erysiphe polygoni) infection was observed in all ranges. Chlorosis (physiogenic) in varying degrees was also generally prevalent. In one range damping-off was causing considerable damage in a bench of cuttings.

Lathyrus odoratus (Sweet Pea). Powdery mildew (Erysiphe polygoni) was generally prevalent in one planting, but was causing only minor damage.

Lilium sp. Mosaic and necrotic fleck (virus infections) were found in all lots of lilies observed. Since the plants had already been culled for sale to retailers and the most severely infected discarded, no estimate of the actual percentage of affected plants could be made. In one range gray mold (Botrytis sp.) was causing moderate damage to unopened buds.

Matthiola (Flowering stock). Gray mold (Botrytis sp.) was causing moderate damage to leaves and inflorescences in one range.

Pelargonium (Geranium). Many plants in one range were severely damaged by a bacterial leaf spot (probably Phytomonas [Xanthomonas] pelargonii). In most instances much defoliation had occurred and affected leaves were wilting. It was found that the bacteria were present in great numbers in the petioles and had also formed necrotic areas within the stems at the nodes. Light gray mold (Botrytis sp.) infection of the leaves and inflorescences was noted in all ranges. Moderately severe crinkle (virus) infection was found in one lot of plants. Oedema (physiogenic) was generally

prevalent, but not damaging, in another range.

Petunia. Mosaic (virus) infection was generally prevalent in varying degrees in all lots of plants observed.

Rosa sp. (Rose). Powdery mildew (Sphaerotheca pannosa) was most prevalent and damaging on potted plants. Bench plantings were only slightly infected. Light to moderately severe black spot [Diplocarpon rosae] infection was observed in all bench roses, as was dieback or canker (Coniothyrium sp.).

Saintpaulia (African violet). Ringspot (physiogenic), in varying degrees of intensity, was observed in all lots of this suscept.

Verbena. Powdery mildew (Erysiphe cichoracearum) infection ranging from light to heavy was observed in every lot of this plant.

Zantedeschia aethiopica (calla lily). Soft rot (Erwinia aroideae) was responsible for an estimated 5% loss in potted specimens.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

CORN EAR ROTS IN SOUTH CAROLINA IN 1944

Alton E. Prince[1]

A preliminary survey of the corn ear rots was conducted in South Carolina at harvest time during the fall of 1944. Twenty-five or 50 ears taken at random were examined in a field and the information recorded in the 5 classes given in Table 1. Three to 6 of the diseased ears were collected from each field, the number depending upon the variety of symptoms of disease evident.

Table 1. A comparison of the incidence of corn ear rots in the Piedmont and Coastal Plain regions of South Carolina in 1944

Region	Corn ears examined	Ears not infected	Ears damaged by: Ustilago maydis	Other fungi, no insects	Other fungi following insect damage	Insects but no fungi
	No.	%	%	%	%	%
Piedmont	800	14.6	3.9	11.4	53.5	13.3
Coastal Plain	825	17.0	0.7	0.7	21.3	60.5

Differences in the incidence of the ear rots were observed between the Piedmont and the Coastal Plain, including the Sand Hills, therefore the data have been grouped to represent these 2 regions. Counties included in the Piedmont are Abbeville, Anderson, Chester, Greenville, Greenwood, Pickens, Saluda, Spartanburg, and Union, while counties represented in the Coastal Plain are Aiken, Allendale, Bamberg, Barnwell, Clarendon, Darlington, Florence, Hampton, Kershaw, Lee, Lexington, Orangeburg, Sumter, and Williamsburg. In the Piedmont, 126 acres in 30 fields were surveyed, while in the Coastal Plain 337 acres in 32 fields were surveyed. Table 1 is a summary of the data obtained from the field survey.

[1]The writer is indebted to Dr. C. H. Arndt, Associate Plant Pathologist, South Carolina Experiment Station, Clemson, for doing most of the culture work in connection with this survey.

Fungus damage in the Coastal Plain was negligible even though insect damage, including that caused by ear worms and weevils, was greater. The damage indicated as caused by smut is probably low, since some farmers interviewed had destroyed some smutted ears at "lay-by time".

An attempt has been made to correlate the greater amount of fungus damage in the Piedmont than in the Coastal Plain by comparing rainfall and temperature records from selected stations near the places of collection, but no correlation in this way was possible. However, when comparing the rainfall records for the 2 regions, it was found that the Piedmont received more rainfall than usual this season, while the Coastal Plain received less. One would expect more ear rot under the conditions that existed in the Piedmont than in the Coastal Plain where rainfall was deficient; however, data for several years should be available before conclusions should be drawn.

A considerable amount of information was obtained on the fungi associated with the ear rots. Three to 20 grains from each collection were sterilized in BK solution with about 3% available chlorine, then placed on water agar in Petri dishes for incubation. The plates were examined at intervals to determine the fungi and records made. Those fungi that could not be determined were sent to Dr. L. S. Olive at Beltsville, Maryland. Table 2 gives a summary of the information obtained.

Table 2. Occurrence of fungi associated with corn ear rots in South Carolina, 1944

Region	Number of collections	Percentage of collections from which the following fungi were obtained			
		Fusarium moniliforme	Cephalosporium acremonium	Fusarium (scirpi group)	Diplodia zeae
Piedmont	29	100	41	27	27
Coastal Plain	32	100	50	9	3

Other fungi isolated are as follows: Aspergillus sp., Diplodia frumenti, Fusarium sp., Helminthosporium halodes, Mucor sp., Oidium tenellum (Rhinotrichum cucumerinum), Penicillium sp., and Trichoderma viride.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

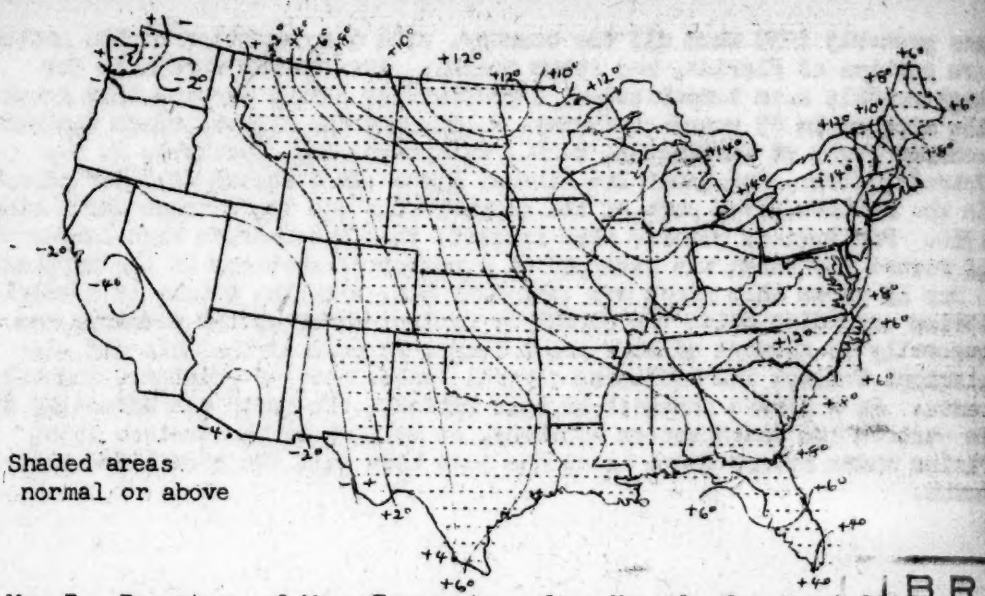
MARCH WEATHER

(From U. S. Department of Commerce, Weather Bureau, Weekly Weather and Crop Bulletin for the week ending April 3, 1945).

Map I shows the departures of mean temperatures from normal for March 1945 and it will be necessary to go back in the weather history of the country to about 1910 before finding an equally warm March. Practically all sections of the country east of the Rocky Mountains were above normal and usually the departures were quite large, exceeding 10° in most parts and ranging as high as 15° in some north-central sections. The previous March showing such abnormal temperatures over such wide areas

was probably 1910 when all the country, with the exception of the southern portion of Florida, had above normal. New records were made for high monthly mean temperatures, a preliminary survey showing this March the warmest in 87 years at Albany, N. Y., and the highest since weather records began at Washington, D. C., Baltimore, Md., Syracuse, N. Y., Detroit, Mich., and Sault Ste. Marie, Mich. In a number of other places in the north-central part of the country this was the warmest March since 1910. Preliminary reports also indicate that the extreme high temperature of record for March was exceeded at a number of stations in the Northeast.

Map II shows that March was extremely wet, with the totals of precipitation exceeding twice the normal in central parts of the country, and generally 50 percent or more above normal in most of the Ohio and Mississippi Valleys and including central Texas, most of Oklahoma, and Arkansas. As a marked contrast to this extreme, the month was unusually dry in eastern and southeastern sections, as well as in the western Great Plains where rather large areas had less than half the normal for the month.



Map I. Departure of Mean Temperature from Normal, for March 1945

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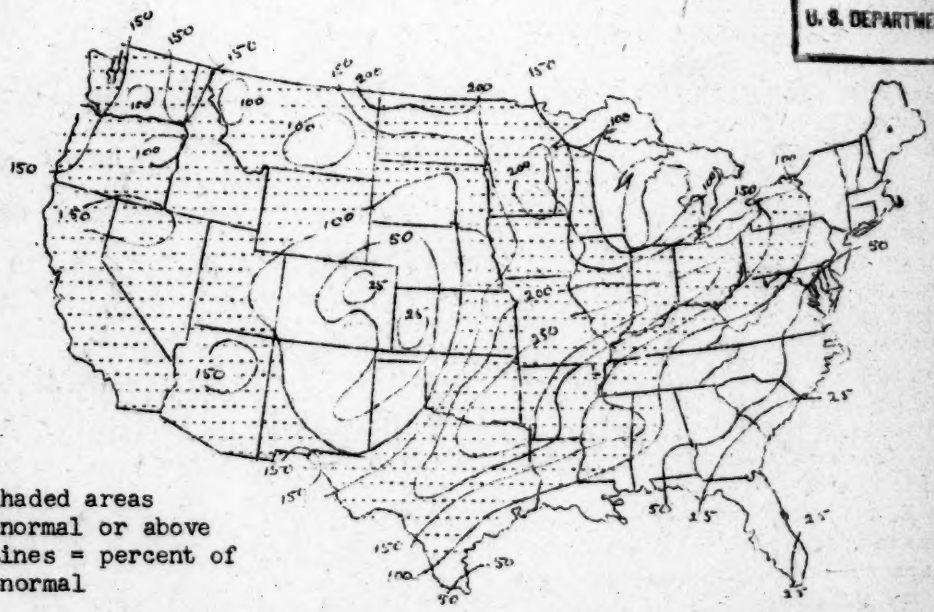

Map II. Percentage of Normal Precipitation, for March 1945